



Bay of Bengal Large Marine Ecosystem Project



Assessment of the efficacy of Myanmar's shark reserves

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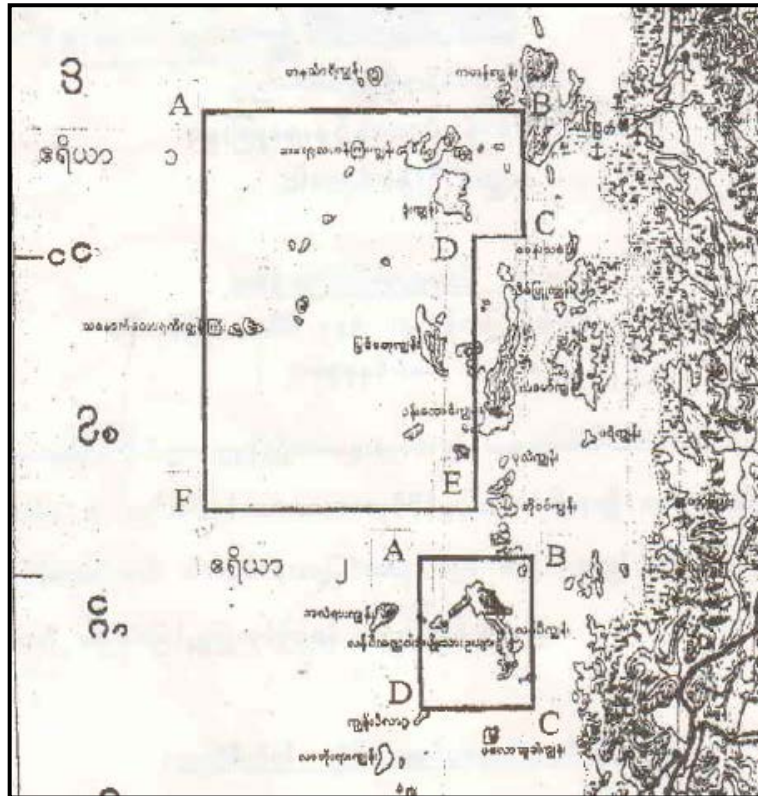
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Assessment of the efficacy of Myanmar's shark reserves (ငါးမုန်းထိန်းသိမ်းရေး)



Department of Fisheries, Myanmar

Fauna & Flora International and

Bay of Bengal Large Marine Ecosystem Project

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Acronyms used

BOBLME	Bay of Bengal Large Marine Ecosystem
CITES	Convention on International Trade in Endangered
CTI	Coral Triangle Initiative
DoF	Department of Fisheries, Myanmar
FAO	Food and Agriculture Organization
FFI	Fauna & Flora International
GPS	Global Positioning System
IEC	Information, Education and Communications
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MEAT	Management Effectiveness Assessment Tool
MLFRD	Ministry of Livestock, Fisheries and Rural Development, Myanmar
NCC	National Coordinating Committee
NPOA	National Plan of Action
PAMB	Protected Area Management Board
SOP	Standard Positioning System

1. Background

In 2004 the Department of Fisheries (DoF), of the Ministry of Livestock, Fisheries and Rural Development Myanmar (MLFRD) established two shark reserves within Myeik Archipelago through Notification 2/2004 (Appendix I). The notification prohibits the targeting of sharks within two sites comprising 3,348,259 acres, almost 25% of the Archipelago's total area (Figure 1). This includes a 2,909,188 acres area around Thayawthadangi and Torres Island in the north of the archipelago and a 448,071 acres area around Lampi Island Marine National park in the south. The reserves were established as a means to address the threat of overfishing of sharks which had resulted in diminishing stocks. Although such a threat is not unique to sharks in Myanmar, with many fish populations in decline, it is their life history characteristics which lead them to be particularly vulnerable. This includes slow growth rates, late maturity, long gestation periods and often few young are produced (Dulvy et al. 2014). This is coupled with the important role sharks play as apex predators in keeping the balance within an ecosystem (Myers et al. 2007).

Since 2004 however, no effective conservation plan has been developed for these sites meaning the reserves lack physical demarcation, an active law enforcement programme or monitoring of shark catches and populations. Furthermore, before the reserves were established no formal biological surveys were undertaken to assess the species diversity and abundance within the two areas and as such no baseline to monitor management effectiveness exists. In addition, during a recent assessment of shark and ray fisheries in Myanmar most fishers interviewed at landing sites did not know of the reserves and if they did it was usually only for the block surrounding Lampi Island (Howard et al. 2015). There is also a nationwide ban on shark fishing which began in 2009 (Appendix II). This is an Order under a CITES letter by the Director General of DoF calling an end to shark fishing across Myanmar which basically renders the reserves redundant.

Given these issues a formal evaluation of the reserves efficacy was deemed necessary and was undertaken as part of the Bay of Bengal Large Marine Ecosystem (BOBLME) Project of the Food and Agriculture Organisation (FAO) of the United Nations: "Strengthening existing marine reserves and shark conservation in Myanmar". This project is a collaborative effort between BOBLME and FFI with support from the DoF. Using an adapted version of the Philippines Marine Protected Area (MPA) Management Effectiveness Assessment Tool (MEAT)¹ (Philippine CTI NCC, 2011) the following report details the results and major findings of the evaluation.

¹ "The MPA MEAT is a harmonized version of the MPA Report Guide of the Coastal Conservation and Education Foundation, Inc. (CCEF, White et al. 2004) as modified by the Philippine Environmental Governance Project 2 (EcoGov2), (Arceo et al. in prep), facilitated by the MPA Support Network (MSN) through the CTI (Coral Triangle Initiative) Support Partnership or CTSP. Some elements are incorporated in the MPA MEAT to gauge and highlight important threshold indicators and processes that help promote and achieve MPA management effectiveness outputs and outcome." (Source: <http://www.coraltriangleinitiative.org/library/toolkit-marine-protected-area-management-effectiveness-assessment-tool-february-2011>).

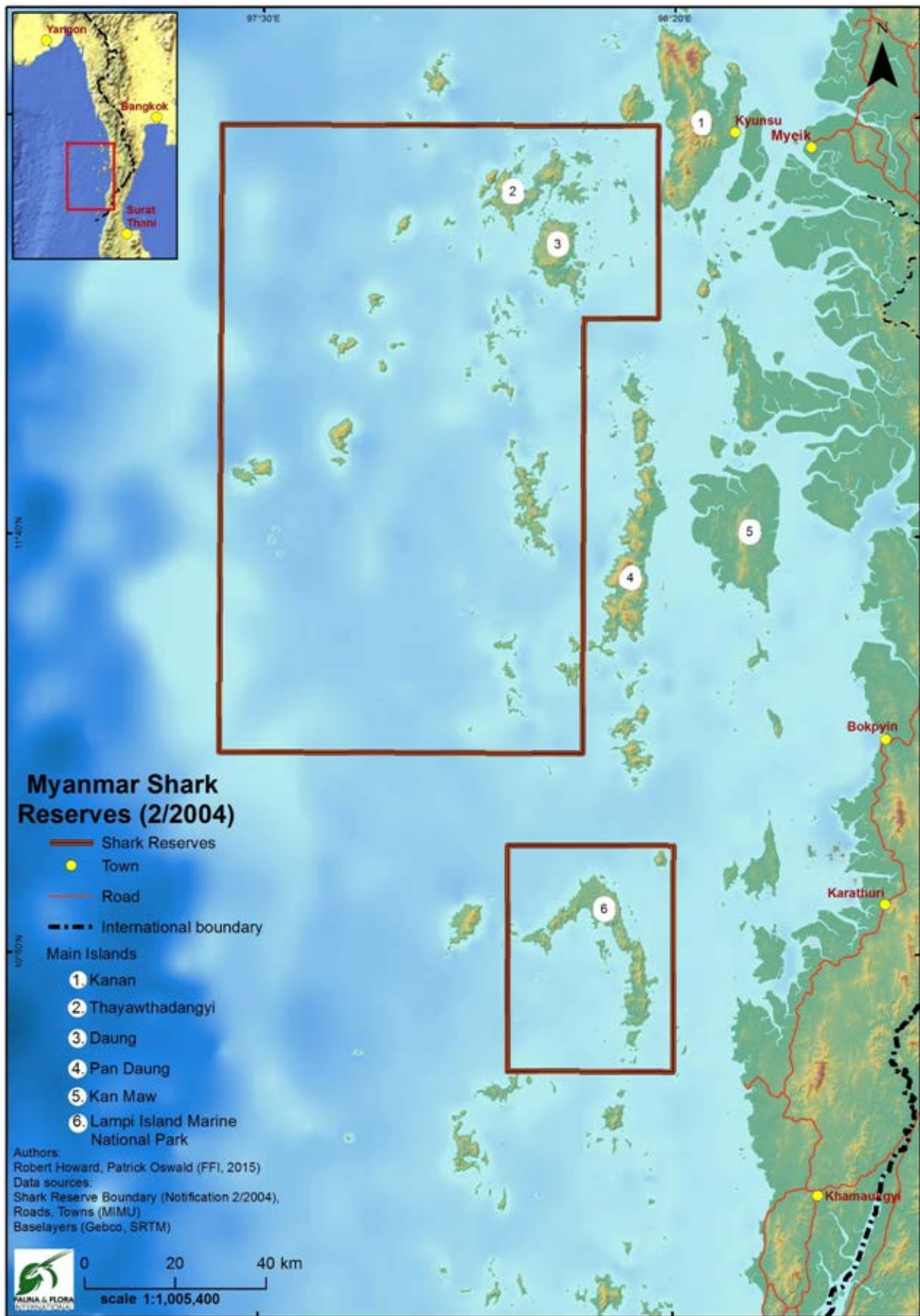


Figure 1 Myanmar shark reserve boundaries (red boxes). Notification 2/2004

2. Methods

Several tools have been developed to assess management effectiveness of established MPAs. For the shark reserves the MPA MEAT assessment tool from the Philippines was adapted for the Myanmar context. The evaluation was undertaken by members of Myanmar's Department of Fisheries in Tanintharyi Region, tasked with management of the reserves, and staff from FFI who are assisting the department in the wider collaborative work with the BOBLME Project. Additional information from socio-economic surveys conducted in 2014 and 2015 (see Schneider et al. 2014 and Howard et al. 2015 for details of the surveys and methodology), which included questions relating to the reserves, were also used to support the MEAT.

3. Results

3.1. MPA Management Effectiveness Assessment Tool

3.1.1. Background

MPA name:	<u>Complete name</u>	Myanmar Shark Reserves	
	<u>Myanmar name</u>	၀ င်းမင်းထိန်းသိမ်းရေး	
Location:	<u>Region/s</u>	Tanintharyi Region	
	<u>District/s</u>	Myeik, Bokpyin and Kawthaung	
Boundary	Corner / Point	Latitude	Longitude
Coordinates (latitude & longitude)	Point 1. A	12.483330	97.416667
	Point 1. B	12.483330	98.300000
	Point 1. C	12.100000	98.300000
	Point 1. D	12.100000	98.150000
	Point 1. E	11.233330	98.150000
	Point 1. F	11.233330	97.416667
	Point 2. A	11.050000	98.000000
	Point 2. B	11.050000	98.333333
	Point 2. C	10.600000	98.333333
	Point 2. D	10.600000	98.000000
Size	<u>Acres:</u>	3,348,259ac (Point 1. 2,909,188, Point 2. 448,071)	
MPA type:	<u>Sanctuary/Reserve/Combination:</u>	Reserve	
Ecosystems protected	<u>Coral reef, mangrove, seagrass, etc.</u>	Reserve protects species not habitats	
coral cover	<u>Percent live coral cover (include year)</u>	25-30% (2013-2014)²	
fish biomass / density	<u>Indicate units (kg/ha. or individual/ha.)</u>	Unknown for sharks	
Year established	<u>Based on legal document</u>	2004	
legislation:	<u>Name and code of ordinance / R.A.</u>	Notification 2/2004	

² Howard et al. (2014)

Evaluation date: <u>dd/mm/yyyy</u>		02/05/2015
Evaluator(s) details:		
Name	Positions	Organisation
U Htun Win Myint	Regional Fisheries Officer	Dept. of Fisheries, Tanintharyi Region
U Myint Shwe	District Officer	Dept. of Fisheries, Myeik District
U Zau Lunn	Marine Programme Manager	Fauna & Flora International
Robert Howard	Marine Programme Adviser	Fauna & Flora International

3.1.2. Assessment

(Comments for each question in bold and italicised)

Level 1 - MPA is established (17 items, 27 points)				
Criteria / Guide questions allowable		Points	Actual points	Remarks / Means of verification
1.1 Establishment based on participatory process (5/5)				
MPA established with the participation of the community based on informed decisions				
1.1.1	MPA concept explained to stakeholders	0 or 1	0.5	<i>Stakeholders informed of the reserves establishment</i>
Was the MPA concept explained to the stakeholders? Affected stakeholders have been oriented on MPA concepts and benefits				<ul style="list-style-type: none"> • Minutes of consultations & public hearings • Activity report / proceedings of the consultation
1.1.2	MPA accepted and approved by the community or local government	0 or 1	0.5	<i>Reserves approved by government but no documentation of community approval</i>
Was the MPA accepted by the community or local governments? Public consultation on site selection should be conducted in order to gain community approval and acceptance				<ul style="list-style-type: none"> • Resolution(s) • Minutes of meeting

1.1.3	BASELINE ASSESSMENT CONDUCTED *	0 or 3	1	<i>No surveys of sharks in the reserves conducted before or in the year following establishment. In 2013-14, as part of FFI's reef check surveys shark observations were included. Socio-economic surveys also conducted in 2014 which included questions relating to sharks. Assessment of shark fishery in 2015 included information on reserves.</i>
Were the stakeholders engaged in baseline assessment using standard methods / any acceptable methods? Baseline assessment survey includes biophysical assessment and community profile				<ul style="list-style-type: none"> • Biophysical assessment report • SocMon report • Technical reports of consultants • Names of local participants
1.2 Adoption of a legitimate management plan (6/6) Management plan is adopted and legitimized by a Protected Area Management Board (PAMB) or similar legal body				
1.2.1	Management plan drafted	0 or 1	0	<i>No management plan drafted</i>
Has the management plan been drafted?				<ul style="list-style-type: none"> • Any draft of management plan
1.2.2	MPA plan prepared in a consultative and participatory manner	0 or 1	0	<i>No management plan drafted</i>
Was the MPA plan prepared in a consultative and participatory manner?				<ul style="list-style-type: none"> • Documentation of public consultation about the MPA plan
1.2.3	Functions of MPA management body explained through IEC (Information, Education and Communications programme)	0 or 1	0	<i>No management body established</i>
Were the functions of the MPA management body and benefits from the MPA explained through initial IEC activities?				<ul style="list-style-type: none"> • IEC materials
1.2.4	MANAGEMENT PLAN ADOPTED *	0 or 3	0	<i>No management plan drafted</i>
Has the management plan been finalised and adopted?				<ul style="list-style-type: none"> • Management plan • Resolution
1.3 Legislations (Notification / Presidential Proclamation / Union Act) (5/5) Management plan is adopted and legitimized by the Regional Government or similar legal body				
1.3.1	Legal instrument declaring the MPA has been drafted	0 or 1	1	<i>Notification 2/2004 enacted</i>

Has the legal instrument declaring the MPA been drafted?				<ul style="list-style-type: none">• Draft or final notification• Draft union act/Regulation
1.3.2	Consultations on legal instrument with stakeholders conducted	0 or 1	0	<i>Stakeholders informed after the creation</i>
Were there public hearings / community consultations on the legal instrument declaring the protected areas?				
1.3.3	LEGAL INSTRUMENT APPROVED *	0 or 3	3	<i>Notification 2/2004 enacted</i>
Has the legal instrument establishing the MPA been approved?				<ul style="list-style-type: none">• Notification declaring the MPA
1.4 Management body formed and functional (11/11) MPA established with the participation of the community based on informed decisions				
1.4.1	Management body determined and identified	0 or 1	0	<i>No management body established</i>
The Regional or local governments have committed to give the MPA institutional support to strengthen enforcement and collaboration. Political support = budget, manpower, or technical				<ul style="list-style-type: none">• Contracts / MOU• Annual investment plan
1.4.2	MANAGEMENT BODY FORMED AND ROLES CLARIFIED *	0 or 3	0	<i>No management body established</i>
Has the management body been formed and have their roles been clarified?				<ul style="list-style-type: none">• Minutes showing committees• Organizational chart with clear roles• Enabling documentation (e.g., appointment papers)
1.4.3	BUDGET ALLOCATED FOR AT LEAST ONE YEAR*	0 or 3	0	<i>No specific funds set aside for Reserve management</i>
Has the budget for at least one (1) year of MPA implementation been allocated?				<ul style="list-style-type: none">• Approved Work and Financial Plan• Document appropriating
1.4.4	IEC activities coordinated by the management body?	0 or 1	0.5	<i>Billboards and posters developed and education programmes on shark reserves included in overall DoF IEC programmes but not by management board (see Annex 3)</i>

Have IEC activities been coordinated by the management body? Are signboards / billboards posted along the coastline / shoreline and visible to key stakeholders?				<ul style="list-style-type: none"> • IEC plan or similar document • Minutes showing IEC activities • Reports on IEC activities • Photographs of billboards / signboards and IEC materials
1.4.5	MPA boundaries delineated	0 or 1	0	No physical demarcation of boundary
Are the MPA's boundaries properly delineated in the most appropriate manner and boundary markers installed? When possible, the MPA boundaries should be marked by anchor buoys made with appropriate and sturdy materials. For large areas information materials (e.g., banners, billboards, posters) that clearly show the boundaries of the protected area and zones established should be accessible and visible to key stakeholders.				<ul style="list-style-type: none"> • Photograph of marker buoys showing status • Maps on billboards, banners, posters
1.4.6	MPA enforcers identified	0 or 1	0	No specific enforcers identified
Have the MPA enforcers already been identified?				<ul style="list-style-type: none"> • Document showing names of enforcers appointment papers
1.4.7	Biophysical monitoring activities coordinated by the management body	0 or 1	0	See 1.1.3
Are the biophysical monitoring activities coordinated by the management body?				<ul style="list-style-type: none"> • Biophysical monitoring report • Resolutions approving monitoring activities
Total score for level 1		27	6.5	

Level 2 - MPA management is effectively strengthened (9 items, 15 points)

Criteria / Guide questions allowable		Points	Actual points	Remarks / Means of verification
2.1 The MPA is effectively strengthened (15/15)				
2.1.1	Enforcement plan, or its equivalent, in place	0 or 1	0	No plans developed
The MPA should have a clear and feasible enforcement plan				<ul style="list-style-type: none"> • Enforcement plan (i.e., schedules, SOPs, etc.)
2.1.2	Marine enforcement group trained	0 or 1	0.5	District DoF officers trained in general fisheries laws including Reserves, however no specific training for patrolling the Reserves.

Have the marine enforcement team members been trained on enforcement procedures and protocols? (e.g., apprehension, Para-legal, use of GPS, safety, etc.)				<ul style="list-style-type: none"> • Training report with names of participants • Certificate of attendance to training(s)
2.1.3	PATROLLING AND SURVEILLANCE CONDUCTED REGULARLY *	0 or 3	0.5	<i>Although navy patrols the area it is understood that they do not focus on fishers catching sharks in the Reserves</i>
Are patrolling, surveillance, and other violation detection measures (e.g., watchtowers, radars, community reporting, etc.) being conducted regularly?				<ul style="list-style-type: none"> • Attendance of patrollers • Patrol logs • Back to office reports (after patrols)
2.1.4	VIOLATIONS DOCUMENTED *	0 or 3	0	<i>No violators apprehended since Reserves creation</i>
Are violation reports / apprehensions being documented properly? Even if there are no violations observed, these should be reported as "no observed violations".				<ul style="list-style-type: none"> • Back-to-office report of patrol team • Logbook of apprehensions / report violations
2.1.5	CASES FILED OR VIOLATORS PENALIZED *	0 or 3	0	<i>No violators apprehended since Reserves creation</i>
<p>Are cases filed for apprehended violators or are they penalized (e.g. administrative fines)?</p> <p>Violators are at least required to pay administrative fines or other penalties provided for in the ordinance or any enabling law.</p> <p>Confiscation of gears can also serve as a form of sanction as well as undergoing a seminar for first time violators.</p>				<ul style="list-style-type: none"> • Case reports • Legal documents • List of violators penalized • Logbooks • Record of fines collected • List / pictures of gears confiscated
2.1.6	Funds accessed and used	0 or 1	0	<i>No specific funds set aside for Reserve management</i>
Allocated funds should have been accessed and used for MPA management. Funds can also come from other sources (e.g., donors, projects, etc.)				<ul style="list-style-type: none"> • Expenditure reports • Financial statements
2.1.7	Infrastructures maintained	0 or 1	0	<i>No infrastructure developed</i>
Are the MPA billboards, boundary markers, anchor buoys, guardhouse, boats, or other infrastructures for MPA management being maintained?				<ul style="list-style-type: none"> • Photograph of infrastructures showing their condition • Expenditure reports on maintenance of infrastructures

2.1.8	IEC program conducted to sustain public awareness and compliance	0 or 1	0.5	See 1.4.4
Is the IEC program being implemented to sustain public awareness and compliance?				<ul style="list-style-type: none"> • Documentation of IEC activities • IEC materials
2.1.9	Participatory biophysical monitoring in the last 3 years	0 or 1	0.5	Reef Check surveys conducted by FFI which include collection of shark sightings since 2013.
Biophysical surveys should have been conducted at least in the last three (3) years. Surveys should be properly documented, with the data kept safely for review and updating purposes.				<ul style="list-style-type: none"> • Data or report over the last three years
Total score for level 2		15	2	
Thresholds are in BLOCK CAPITALS. To achieve Level 2, Level 1 requirements must have been passed and a minimum of 11 points obtained from Level 2 with all Thresholds met.				

Level 3 - MPA management is effectively sustained for at least 5 years (11 items, 21 points)				
Criteria / Guide questions allowable		Points	Actual points	Remarks / Means of verification
3.1 The MPA management is effectively sustained for at least 5 years (21/21)				
3.1.1	Management plan and ordinance reviewed and updated	0 or 1	0	No management plan developed
Has the MPA management plan reviewed or updated in response to emerging needs and challenges?				<ul style="list-style-type: none"> • Updated management plan or amendments to the plan • Minutes of meeting that reviewed the plan
3.1.2	FUNDS GENERATED OR ACCESSED FOR LAST 2 YEARS *	0 or 3	0	No specific funds set aside for Reserve management
Are financial sources generated or accessed for the last 2 or more consecutive years?				<ul style="list-style-type: none"> • Audited expenditure report for the last 2 years
3.1.3	Management body able to supervise management activities of the MPA and access technical assistance, if necessary	0 or 1	0	No management board established
Management body is fully functioning and has shown capacity to locate and access technical assistance to improve MPA management and status				<ul style="list-style-type: none"> • Letters with reply from partner for technical assistance • Reports with other partners • Minutes of meetings w/ action points
3.1.4	ENFORCEMENT SYSTEM FULLY OPERATIONAL IN THE LAST FIVE CONSECUTIVE YEARS *	0 or 3	0	No enforcement of the reserves conducted

The enforcement plan is fully implemented. Patrolling activities, violations reporting and apprehension, and sanctioning of violators should have been on-going over the last five years.				<ul style="list-style-type: none"> • Logbook with records of patrolling apprehensions • Annual enforcement reports (for 5 years)
3.1.5	IEC program enhanced	0 or 1	0.5	See 1.4.4
IEC materials are regularly reproduced or updated and disseminated				<ul style="list-style-type: none"> • IEC Program progress reports (including dissemination details) • Updated IEC materials
3.1.6	PERFORMANCE MONITORING OF THE MANAGEMENT BODY CONDUCTED REGULARLY *	0 or 3	0	No management board established
Performance monitoring of the management body should be done regularly as defined in the management plan or at least every 2 years. Management evaluation tools such as the MPA MEAT can be used to assess management performance.				<ul style="list-style-type: none"> • Performance evaluation reports for the management body
3.1.7	REGULAR PARTICIPATORY MONITORING CONDUCTED*	0 or 3	0	See 1.1.3
Biophysical surveys should have been conducted at least in the last five (5) years. Surveys should be properly documented, with the data kept safely for review and updating purposes.				<ul style="list-style-type: none"> • Monitoring data showing trends • Attendance sheets showing names of locals who participated in monitoring activities
3.1.8	Socioeconomic monitoring conducted regularly	0 or 1	0.5	SocMon survey completed in 2014 using SocMon methodology (Schneider et al 2014). Surveys not specific to reserves but questions include information on sharks in villagers within the reserves. Assessment of shark fishery in 2015 included information on the Reserves (Howard et al.2015).
"Regular" as defined in the management plan or at least annually. Minimum socioeconomic data which may be used by the management body to adjust management plans & strategies include: income, livelihood activities, population, resource use, fish catch, etc.				<ul style="list-style-type: none"> • Socioeconomic data showing trends
3.1.9	Sustainable financing strategy established	0 or 1	0	No strategy developed

Is there an internally generated revenue scheme?				<ul style="list-style-type: none"> • Resolution or ordinance imposing fees • Financial guidelines • Private-public partnership agreements
3.1.10	VIOLATORS PROSECUTED AND SANCTIONED *	0 or 3	0	No violators apprehended since Reserves creation
Are the prosecution process requirements, if any, satisfied by the MPA management body?				<ul style="list-style-type: none"> • Appearance in court or court decision • Other sanctions implemented
3.1.11	Feedback system in place (for monitoring)	0 or 1	0	No feedback system developed
Is there a feedback system in place?				<ul style="list-style-type: none"> • Minutes of public hearings / presentations
Total score for level 3		21	1	
Thresholds are in BLOCK CAPITALS. To achieve Level 3, Level 1 & 2 requirements must have been passed and a minimum of 16 points obtained from Level 3 with all Thresholds met.				

Level 4 - MPA management is effectively institutionalized for at least 7 years (11 items, 21 points)				
Criteria / Guide questions allowable		Points	Actual points	Remarks / Means of verification
4.1 MPA management effectively institutionalized for at least 7 years (21/21)				
4.1.1	Political support from the provincial council	0 or 1	0.5	In principle support given for Reserves but no actions implemented
Local governments have committed to give the MPA institutional support to strengthen enforcement and collaboration. Political support = budget, manpower, or technical				<ul style="list-style-type: none"> • Contracts / MOU • Annual investment Plan
4.1.2	MPA MANAGEMENT PLAN INCORPORATED IN BROADER DEVELOPMENT PLANS *	0 or 3	0	No management plan developed
The MPA is incorporated within the long-term regional development plans (e.g., Comprehensive Land Use Plans, Regional Development Plans, etc.)				<ul style="list-style-type: none"> • Higher level plans where the MPA is integrated
4.1.3	Management body capable of outsourcing funds	0 or 1	0	No management board established
Is the management body able to get funds for the MPA from external sources?				<ul style="list-style-type: none"> • Proposals submitted (received copy) • Grant agreements entered into by the management body
4.1.4	Coordination with national & local agencies clearly defined and formalized	0 or 1	0	No coordination established with other agencies

Is the coordination with appropriate national & local agencies on policies? Are the accountabilities and working relationships among collaborating institutions clearly defined and formalized?				<ul style="list-style-type: none"> • Memorandum of Agreement • Partnership contracts / documents
4.1.5	ECOLOGICAL AND SOCIOECONOMIC IMPACT ASSESSMENT CONDUCTED*	0 or 3	1	See 1.1.3
Assessment of resource status and long-term trends should be conducted together with an assessment of benefits obtained from the MPA by stakeholders. Impacts should also be assessed vis-a-vis the overall objective of the MPA.				<ul style="list-style-type: none"> • Trends and temporal assessments of ecological & socio-economic impacts • Impact assessment report
4.1.6	PERFORMANCE MONITORING AND EVALUATION SYSTEM LINKED TO AN INCENTIVE SYSTEM *	0 or 3	0	No monitoring and evaluation system developed
Recognition / awards are regularly being given to outstanding members, law enforcers, etc. Incentives can also include granting of available loans or supplementary livelihood opportunities.				<ul style="list-style-type: none"> • Awards / Recognition received • Announcement of competition / performance incentives
4.1.7	IEC SUSTAINED OVER SEVEN YEARS *	0 or 3	1	See 1.4.4
Has the IEC program for the MPA been sustained over the past seven years?				<ul style="list-style-type: none"> • IEC program progress reports for 7 years • IEC long-term plan
4.1.8	Management body can adjudicate certain cases	0 or 1	0	No management board established
Does the management body adjudicate administrative cases?				<ul style="list-style-type: none"> • Proceedings of adjudications • Letters of complaints
4.1.9	Expansion strategies or resource enhancement programs initiated	0 or 1	0.5	No expansion of reserves, however shark fishing has been banned for all of Myanmar.
MPA coverage or core zones expanded. Advance conservation and resource enhancement activities implemented (e.g., coral reef restoration, mangrove reforestation, giant clam restocking, etc.).				<ul style="list-style-type: none"> • Reports
4.1.10	Support facilities constructed	0 or 1	0	No infrastructure developed
Facilities to support MPA enterprises or improve conservation efforts are constructed (e.g., guardhouse, visitors' centre, education / training centre, watchtowers, etc.)				<ul style="list-style-type: none"> • Photographs of infrastructure

4.1.11	MPA FINANCIALLY SELF-SUSTAINING IN THE LAST SEVEN (7) CONSECUTIVE YEARS *	0 or 3	0	<i>No specific funds set aside for Reserve management</i>
Revenues (internally generated and/or obtained from external sources) should be enough to cover operating expenses of the MPA in the last seven (7) years				• Audited financial report for the last seven years
Total score for level 4		21	3	
Thresholds are in BLOCK CAPITALS. To achieve Level 4, Levels 1 to 3 requirements must have been passed and a minimum of 16 points obtained from Level 4 with all Thresholds met.				

3.1.3. Summary of MPA MEAT results

Name of MPA :	Myanmar Shark Reserves
Location :	Myeik Archipelago, Myanmar
Date accomplished :	2/5/2014
MPA level achieved:	Level 1, Legal instrument declaring the MPA approved
Total cumulative score *:	13/84
Remarks:	Reserve status redundant as now a nationwide ban on shark fishing. This means whether inside or outside the reserves fishers cannot actively target sharks. The ban is not however enforced for fishers at sea and enforcement at local markets is minimal.

MPA level	Year requirement met?	Total score per level	All threshold questions satisfied?	MPA level satisfied?
1 - Established - at least 1 year - at least 20 total cumulative score - all Level 1 thresholds met	MPA is at least 1 year old	6.5	No	No
2 - Strengthened - at least 3 years - at least 31 total cumulative score - all Level 1 & 2 Thresholds met	MPA is at least 3 years old	2	No	No
3 - Sustained - at least 5 years - at least 47 total cumulative score - all Level 1, 2, & 3 thresholds met	MPA is at least 5 years old	1	No	No
4 - Institutionalized - at least 7 years - at least 63 total cumulative score - all thresholds met	MPA is at least 7 years old	3	No	No

Total cumulative score	out of 84 points *	12.5		
* Total cumulative score: <24 points = "Fair"; 25 to 39 = "Good"; 40 to 61 = "Very Good"; 62 to 84 = "Excellent". If your MPA does not meet the basic Level 1 category, your MPA is still under the process of establishment. Basic activities should be conducted soon to fully "establish" the MPA and make it operational.				

3.1.4. MPA management focus:

Management focus	Item numbers in MPA MEAT form	Total available points	Actual score per management focus	Actual score divide by total available points
Management plan	1.2.1 + 1.2.2 + 1.2.4 + 3.1.1 + 4.1.2	9	0	0%
Management body	1.2.3 + 1.4.1 + 1.4.2 + 3.1.3 + 3.1.6 + 4.1.1 + 4.1.4	11	1.5	14%
Legal instrument	1.3.1 + 1.3.2 + 1.3.3	5	4	80%
Community participation	1.1.1 + 1.1.2	2	1	50%
Financing	1.4.3 + 2.1.6 + 3.1.2 + 3.1.9 + 4.1.3 + 4.1.11	12	0	0%
IEC	1.4.4 + 2.1.7 + 2.1.8 + 3.1.5 + 4.1.7	7	2.5	36%
Enforcement	1.4.5 + 1.4.6 + 2.1.1 + 2.1.2 + 2.1.3 + 2.1.4 + 2.1.5 + 3.1.4 + 3.1.10 + 4.1.8	20	1	5%
Monitoring & Evaluation	1.1.3 + 1.4.7 + 2.1.9 + 3.1.7 + 3.1.8 + 3.1.11 + 4.1.5 + 4.1.6	16	3	19%
Site development	4.1.9 + 4.1.10	2	0.5	25%

4. Discussion

The results of this evaluation show that the two shark reserves under Notification 2/2004 within the archipelago are **under performing**, scoring only 12.5 out of 84 points (14.9%), classing the reserves, which were created 11 years ago, in the 'process of establishment' phase. Under the nine Management Foci of the MEAT only one, Legal Instrument, scored well, but with the other foci receiving low scores, and with the nationwide ban on shark fishing, the **reserves are essentially paper parks**. A summary of each of each Management Focus are provided below:

- **Management plan:** as no plan has ever been developed for the reserves this scored 0%. Without this document no guidance has been given to DoF officers on the ground as to what actions are required for the reserves to be effective. Likewise no guidance is given to the

only enforcement body with the resources to actively monitor the reserve i.e. the Myanmar Navy, as to what role they should play.

- **Management body:** a failure to develop a management plan for the reserves can be attributed to the lack of a body to guide the process. With no management body DoF have received little support and advice on how to manage the reserves. The 14% score given to this focus relates to the political support from the provincial council, however to date this has been support in principle for Reserves but no actions implemented.
- **Legal instrument:** as noted above this was the only focus that scored well with 80% with the approval of Notification 2/2004 establishing the reserves. Where this focus lost points was in its participatory approach with fishers informed after the reserve creation.
- **Community participation:** although this focus received a 50% score it gives a false impression of the communities participation in the creation and management of the reserves with only two questions in the assessment used to summarise this question. One of which asks if the 'MPA accepted and approved by the community or local government', however the Reserves were approved by government but no documentation of community approval exists.
- **Financing:** as of 2004 DoF has received no specific budget for the management of the reserves and as such restricting their management capacity.
- **IEC:** since 2004 DoF annually carries out awareness programmes within the main towns along Taninthayri's coast. Although the programmes are not designed specifically for the reserves they are included, along with the nationwide ban on shark fishing (Appendix III). However, following recent assessment of the shark fishery in Myanmar very few fishers and traders, including on the islands within the reserves knew of their existence, although all were aware of the nationwide shark ban (Howard et al. 2015).
- **Enforcement:** with no budget for the reserves DoF have been unable to undertake enforcement patrols. This is also hampered by the fact that DoF has no patrol boats even for day to day operations. The navy however has patrol boats for enforcement but they have other priorities such as illegal foreign vessels fishing within Myanmar waters. This issue is also compounded by 1) the immense size of the reserves, over 1 million hectares, and 2) Myanmar's large fishing fleet, with 2389 inshore and 968 offshore vessels in Tanintharyi Region (Myint Shwe, 2014). Without sufficient resources, namely boats and staff, undertaking effective compliance activities are currently impossible.
- **Monitoring & Evaluation:** at the time of establishment no baseline surveys of species diversity, population abundance, habitat quality or socio-economic status were undertaken and as such there is no starting point to evaluate management effectiveness. Some monitoring programmes however have taken place since the reserves creation, although none are specifically orientated at the reserves. These include the reef check surveys undertaken by FFI, which include shark observations and following over 200 line transect surveys no sharks were recorded (Howard et al. 2014; Howard (ed) 2015). Socio-economic

surveys were also undertaken in 2014 by FFI and BOBLME which included questions relating to shark trends with the majority of participants stating a decline in shark populations (Schneider et al. 2014). The most recent evaluation of sharks in Myanmar, which includes information on the reserves, also noted the decline of sharks within the Archipelago (Howard et al. 2015).

- **Site development:** the 25% score given to this focus relates more to the nationwide ban on shark fishing than to the reserves themselves and as such the reserves haven't been expanded, rather a new regulation for shark conservation has been enacted. Since their establishment no boundary markers are in place, no guardhouses have been constructed and no education centre built.

The current assessment of the efficacy of the two shark reserves shows that serious consideration needs to be given to their future given their performance so far. Myanmar is currently undertaking a re-draft of its National Plan of Action - Sharks (NPOA) and this plan will need to address this issue. As an initial recommendation two different paths of action are proposed:

1. **Cancellation of Notification 2/2004:** given there is a country wide ban on fishing of sharks the premise for the reserves is now redundant as the same law applies for fisherman whether inside or outside the reserve boundaries. This makes enforcement easier, as violators do not need to be caught actively fishing for sharks within the reserves but can be apprehended anywhere in Myanmar. However, there is an issue with the current strength of the regulation declaring the nationwide ban. At present this sits within a just order under a CITES letter. If Notification 2/2004 is cancelled the nationwide ban needs a notification/regulation and implementing guidelines of its own.
2. **Identify core zones in the shark reserves and establish MPAs:** given the extent of the reserves and lack of resources to monitor such a large area key bio diverse areas within the reserves could be identified and designated as no-take zones in which all fishing is banned. This would include spawning and nursery grounds and could curb the high number of juvenile sharks caught as by-catch. The process would require a multi stakeholder planning process including scientific assessments of the area to identify and recommend the best sites. Notification 2/2004 would still stand but the boundaries and rules would be amended.

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Appendix I Notification 2/2004

တိ ကျ မှန် မြန်

ဦးသက္ကရာဇ်အသစ်အသစ်ဖြင့် နိုင်ငံတော်

ဝန်ထမ်းဟူသည့်ပုံတံဆိပ်ခရီးအသစ်အသစ်ဖြင့် နိုင်ငံတော်



ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရ
ဓမ္မမြူရေးနှင့်ရေလုပ်ငန်းဝန်ကြီးဌာန
ငါးလုပ်ငန်းဦးစီးဌာန

အမိန့်ကြော်ငြာစာအမှတ် ၂ / ၂၀၀၄
ရန်ကုန်မြို့၊ ၁၃၆၆ ခုနှစ်၊ ကဆုန်လပြည့်ကျော် ၂ ရက်
(၂၀၀၄ခုနှစ်မေလ ၅ ရက်)

အမှတ် ၁ ငါးလုပ်ငန်းဦးစီးဌာနညွှန်ကြားရေးမှူးချုပ်သည် မြန်မာ့ဝင်လယ်ငါးလုပ်ငန်းဥပဒေ
ပုဒ်မ ၂၃ တွင်အညီအညွတ်အတိုင်း လုပ်ငန်းခွင်ကို ကျင့်သုံး၍ အောက်ဖော်ပြပါ
မြန်မာ့ဝင်လယ် ငါးလုပ်ငန်းရေပြင်အတွင်းတွင် မည်သူမျှမည်သည့်ငါးမန်းမျိုးကို
မဆို ခမ်းဆီးခြင်းဖြင့်လုပ်ကြရန် တားမြစ်လိုက်သည်-

တားမြစ်လိုက်သည့်မြန်မာ့ဝင်လယ်ငါးလုပ်ငန်းရေပြင်
ကနဦးရေပြင်မြောက်ကျွန်းရေရှိ ခုံးကျွန်းမှလန်ကျွန်းအထိ

စရိယာ(၁)

ပွဲရံအ လတ္တီတွဒ် ၁၂ ဒီဂရီ ၂၄ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၇ ဒီဂရီ ၂၅ မိနစ် (အရှေ့)
ပွဲရံအ လတ္တီတွဒ် ၁၂ ဒီဂရီ ၂၄ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၁၈ မိနစ် (အရှေ့)
ပွဲရံအ လတ္တီတွဒ် ၁၂ ဒီဂရီ ၀၆ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၁၈ မိနစ် (အရှေ့)
ပွဲရံအ-ဒီ လတ္တီတွဒ် ၁၂ ဒီဂရီ ၀၆ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၀၉ မိနစ် (အရှေ့)
ပွဲရံအ-လတ္တီတွဒ် ၁၁ ဒီဂရီ ၁၄ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၀၉ မိနစ် (အရှေ့)
ပွဲရံအကပ်လတ္တီတွဒ် ၁၁ ဒီဂရီ ၁၄ မိနစ်(မြောက်)၊ လောင်ဂျီတွဒ် ၉၇ ဒီဂရီ ၂၅ မိနစ် (အရှေ့)

အတွင်းရှိငါးလုပ်ငန်းရေပြင်

စရိယာ(၂)

ပွိုင့်ဆေ လတ္တီတွဒ် ၁၁ ဒီဂရီ ၀၃ မိနစ်(မြောက်)၊လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၀၃ မိနစ် (အရှေ့)
 ပွိုင့်တိ လတ္တီတွဒ် ၁၁ ဒီဂရီ ၀၃ မိနစ်(မြောက်)၊လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၂၀ မိနစ် (အရှေ့)
 ပွိုင့်စိ လတ္တီတွဒ် ၁၀ ဒီဂရီ ၃၆ မိနစ်(မြောက်)၊လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၂၀ မိနစ် (အရှေ့)
 ပွိုင့်ဒီ လတ္တီတွဒ် ၁၀ ဒီဂရီ ၃၆ မိနစ်(မြောက်)၊လောင်ဂျီတွဒ် ၉၈ ဒီဂရီ ၀၀ မိနစ် (အရှေ့)
 အတွင်းရှိငါးလုပ်ငန်းရေပြင်

သန်းထွန်း
 ညွှန်ကြားရေးမှူးချုပ်

စာအမှတ်၊လ/ဥပဒေ-၂/၂၀၀၄($\frac{၁၃၁၆၇}{၁၃၂၁၀}$)

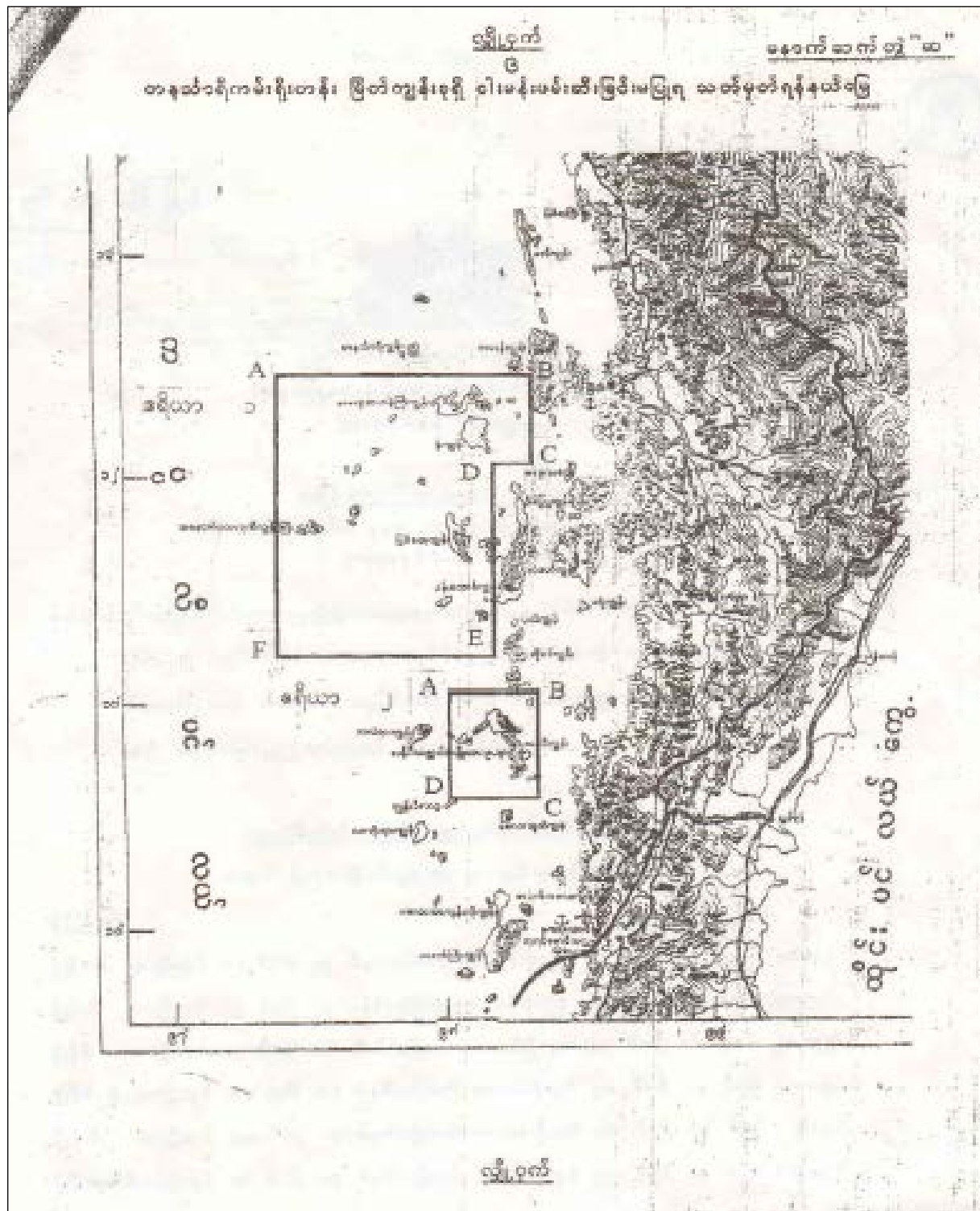
ရက်စွဲ၊၂၀၀၄ခုနှစ်၊မေလ(၅)ရက်

ဖြန့်ဝေခြင်း၊

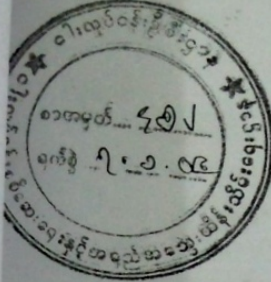
နိုင်ငံတော်အေးချမ်းသာယာရေးနှင့်ဖွံ့ဖြိုးရေးကောင်စီဥက္ကဋ္ဌရုံး၊
 နိုင်ငံတော်အေးချမ်းသာယာရေးနှင့်ဖွံ့ဖြိုးရေးကောင်စီရုံး၊
 အစိုးရအဖွဲ့ရုံး၊
 တရားရုံးချုပ်၊
 ရွှေဝန်ရုံးချုပ်ရုံး၊
 စာရင်းစစ်ရုံးချုပ်ရုံး၊
 ဝန်ကြီးဌာနအားလုံး၊
 ပြည်နယ်/တိုင်း/အေးချမ်းသာယာရေးနှင့်ဖွံ့ဖြိုးရေးကောင်စီရုံးများ၊
 ငါးလုပ်ငန်းကြီးကြပ်ရေးနှင့်အခွန်ဌာနခွဲ၊ငါးလုပ်ငန်းဦးစီးဌာန
 ပြည်နယ်/တိုင်းငါးလုပ်ငန်းဦးစီးဌာနများ၊
 စရိုက်ငါးလုပ်ငန်းဦးစီးဌာနများ၊
 ဖြန့်ချိငါးလုပ်ငန်းဦးစီးဌာနများ၊
 ဦးဆောင်ညွှန်ကြားရေးမှူး(ပုံနှိပ်ရေးနှင့်စာအုပ်ထုတ်ဝေရေးလုပ်ငန်းသို့ပြည်ထောင်စုမြန်မာ
 နိုင်ငံပြန်တမ်းတွင်ထည့်သွင်းကြေညာပေးပါရန်မေတ္တာရပ်ခံ
 ချက်ဖြင့်ပေးပို့ပါသည်။)


အမိန့်အရ

(လုပ်ငန်း)



Appendix II Nationwide shark ban order





ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရ
မွေးမြူရေးနှင့်ရေလုပ်ငန်းဝန်ကြီးဌာန
ငါးလုပ်ငန်းဦးစီးဌာန

တနင်္သာရီတိုင်းငါးလုပ်ငန်းဦးစီးဌာန
ဝင်စာ

စာအမှတ်	၁၈၄၈
နေ့ရက်	၁၀.၂.၁၉
အချိန်	

စာအမှတ်၊ ငလ/F.I.Q.C-လင/၂၀၀၈-၂၀၀၉/၄၅၂
ရက်စွဲ ၂၀၀၉ ခုနှစ်၊ ဇန်နဝါရီလ (၇) ရက်။

အကြောင်းအရာ ။ ။ CITES One Day Operation တွင် တက်ကြွစွာ ပါဝင်ဆောင်ရွက်ရန်
အကြောင်းကြားခြင်း

၁။ မြန်မာနိုင်ငံသည် CITES (Convention on International Trade in Endangered Species) အဖွဲ့ဝင်နိုင်ငံ တစ်နိုင်ငံဖြစ်သည်နှင့်အညီ မျိုးသုဉ်းမည့်အန္တရာယ်ရှိသည့် တောရိုင်းတိရစ္ဆာန်နှင့် သဘာဝအပင်များအား ကာကွယ်စောင့်ရှောက်ထိန်းသိမ်းလျက်ရှိပါသည်။ ငါးလုပ်ငန်းဦးစီးဌာနအနေဖြင့်လည်း CITES စာရင်းဝင် ရေနေသတ္တဝါများ၊ အပင်များကို ထိန်းသိမ်းကာကွယ်ရန်အလို့ငှာ အဆိုပါ သတ္တဝါ၊ အပင်များအား ဌာနခွင့်ပြုချက်မှတစ်ပါး ဖမ်းဆီးခြင်း၊ သတ်ဖြတ်ခြင်း၊ အနှောင့်အယှက်ပြုခြင်း၊ သယ်ယူခြင်း၊ သိုလှောင်ခြင်း၊ ရောင်းချခြင်း၊ လက်ဝယ်ထားရှိခြင်း၊ အခြားနည်းတစ်နည်းနည်းဖြင့် နှောင့်ယှက်ခြင်းမပြုရန်နှင့် ရေလုပ်သားများသည် မိမိတို့၏ငါးဖမ်းကိရိယာများတွင် မတော်တဆထိမိခဲ့လျှင် အမြန်ဆုံး အရှင်အတိုင်း ပြန်လွှတ်ပေးရန် အမိန့်ကြော်ငြာစာများ ထုတ်ပြန်ထားရှိပြီးဖြစ်ပါသည်။

၂။ (၁၅-၁-၂၀၀၉)ရက်နေ့တွင် ကမ္ဘာတဝှမ်း၌ မျိုးသုဉ်းမည့်အန္တရာယ်ရှိသည့် တောရိုင်းတိရစ္ဆာန်နှင့် သဘာဝအပင်များ တရားမဝင်ရောင်းဝယ်၊ သယ်ဆောင်မှု ကာကွယ်တားဆီးရေးဆိုင်ရာ စစ်ဆေးရေးတစ်ရပ်အား တစ်ပြိုင်နက်ဆောင်ရွက်သွားမည်ဖြစ်ရာ ငါးလုပ်ငန်းဦးစီးဌာနမှ စစ်ဆေးရေးမှူးများအနေဖြင့် ပူးတွဲပါ CITES စာရင်းဝင် ရေနေသတ္တဝါများနှင့် သဘာဝအပင်များ တရားမဝင်သယ်ဆောင်ရောင်းဝယ်မှုများ တားဆီးရေးလှုပ်ရှားမှုတွင် အခြားဌာနဆိုင်ရာများနှင့်ပေါင်းစပ်၍ တက်ကြွစွာပါဝင်ဆောင်ရွက်ရန် အကြောင်းကြားအပ်ပါသည်။

၃။ ပူးတွဲပါ CITES စာရင်းတွင် ငါးမန်းမျိုးစိတ်အတွက် ဝေလငါးမန်း (Whale Shark) ၊ သိပ္ပံအမည် (*Rhincodon typus*) နှင့် သန္တာကျောက်ခက် (Coral) အနေဖြင့် မျိုးစိတ် (၅၁)မျိုးကိုသာ သတ်မှတ်ထားသော်လည်း မြန်မာနိုင်ငံအနေဖြင့် မည်သည့် ငါးမန်းမျိုးစိတ်မဆို မည်သည့် သန္တာကျောက်ခက်ကိုမဆို ဌာနခွင့်ပြုချက်မှတစ်ပါး ဖမ်းဆီးခြင်း၊ သတ်ဖြတ်ခြင်း၊ အနှောင့်အယှက်ပြုခြင်း၊ သယ်ယူခြင်း၊ သိုလှောင်ခြင်း၊ ရောင်းချခြင်း၊ လက်ဝယ်ထားရှိခြင်း၊ အခြားနည်းတစ်နည်းနည်းဖြင့် နှောင့်ယှက်ခြင်းမပြုရန် အမိန့်ကြော်ငြာစာများ ထုတ်ပြန်ထားရှိကြောင်း သိရှိဆောင်ရွက်နိုင်ရန် ဖြည့်စွက်ဖော်ပြအပ်ပါသည်။

ဗြိတိသျှဘက်၊ ၀၆၆
သာဓုခံစားပါ။ ကုမ္ပဏီ
လက်မှတ်ရေးထိုးပါ။

၁။ တာဝန်ခံအရာရှိ (Normal Trade)
၂။ တာဝန်ခံအရာရှိ (Border Trade)
၃။ တာဝန်ခံအရာရှိ (နယ်စပ်ထွက်ပေါက်စခန်း)

ညွှန်ကြားရေးမှူးချုပ် (ကိုယ်စား)
(ဝင်းမြင့်မောင် ၊ ညွှန်ကြားရေးမှူး)

Appendix III Education materials



Shark and Shark Reserves education poster (DoF, Myanmar)



Shark education poster (DoF, Myanmar)



Shark and protected species awareness programme (DoF, Myanmar)



Protected species of Myanmar education poster, including sharks (DoF, Myanmar)



Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka and Thailand are working together through the Bay of Bengal Large Marine Ecosystem (BOBLME) Project to lay the foundations for a coordinated programme of action designed to better the lives of the coastal populations through improved regional management of the Bay of Bengal environment and its fisheries.

The Food and Agriculture Organization (FAO) is the implementing agency for the BOBLME Project.

The Project is funded principally by the Global Environment Facility (GEF), Norway, the Swedish International Development Cooperation Agency, the FAO, and the National Oceanic and Atmospheric Administration of the USA.

For more information, please visit www.boblme.org



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